

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. Application No.: 09/530,694

REMARKS

Review and reconsideration on the merits are requested.

Substance of Interview

Applicants would like to thank the Examiner for telephone interviews granted concerning this application.

The prior art discussed was the prior art in the Action of November 19, 2002 and EP 0 875874 submitted in the Information Disclosure Statement of May 14, 2003.

It is believed that agreement was reached that the prior art in the Action of November 19, 2002 would be distinguished by the language added in claims 1, 6 and 16. The Examiner further requested that since the amendment to claims 1, 6 and 16 was based upon the specification and the Figures, that the specification be amended to include the essential language used in the claims. This has been done.

With respect to EP 0 875874 (EP '874; Applicants advise that there is a corresponding U.S. Patent 6,001,194), Applicants pointed out that this reference discloses providing an Fe-based ingot in which Cu particles are dispersed. See claim 11, for example. Further disclosed is elongating the ingot by plastic working so as to form a microstructure rod pattern of Cu. See, for example, the Abstract. Applicants argued that the plurality of line shown in Figs. 3A and 3B of EP '874 are not layers or divided layers, but rods elongated by the plastic working (in a lateral direction on the sheet surface). Phrased somewhat differently, Figs. 3A and 3B show a plurality of rods of Cu as seen from a side direction perpendicular to the rod axial direction. Further, EP '874 does not disclose nor suggest dividing a Cu layer into a number of segments.

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. Application No.: 09/530,694

The Examiner responded by indicating that there appeared to be substantial similarity between Figs. 3A and 3B of EP '874 and Figs. 3(A) and (C) of the present application, and, further, that EP '874 at page 11, lines 15, did use the language "strings of Cu" and the present application at page 20, lines 16/17 did use the language "in the shape of strings or dots of white color".

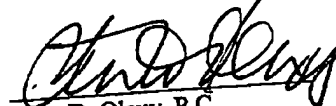
Despite the above seeming similarity in the use of the term "strings", Applicants still respectfully submit that EP '874 (and also corresponding US Patent 6,001,194) does not disclose nor suggest the microstructure of the present invention. In more detail, Figs. 3-5 of the present application show cross-sections of the semi-hard magnetic material of the invention. That is, the "strings" therein correspond to cross-sections of the "sheet-like layers B". Although Figs. 3A and 3B of EP '874 also show "strings", those correspond to cross-sections of the rods of EP '874. It is believed that this is clear from a review of the present specification and the specification of EP '874.

Accordingly, while a cut cross section of a layer and a cut cross section of a rod in the longitudinal direction might show a "string" shape, the objects of EP '874 and the objects of the present invention are totally different from each other and, thus, it is submitted that one of

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. Application No.: 09/530,694

ordinary skill in the art would not be led to the present invention on the basis of the disclosure
and Figures in EP '874.

Respectfully submitted,



Peter D. Olexy, P.C.
Registration No. 24,513

SUGHRUE MION, PLLC
Telephone: (202) 293-7060
Facsimile: (202) 293-7860

WASHINGTON OFFICE



23373

PATENT TRADEMARK OFFICE

Date: June 27, 2003

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. Application No.: 09/530,694

APPENDIX
VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE SPECIFICATION:

In the substitute specification:

Page 4 of the substitute specification, second full paragraph, please amend to read as follows:

The present inventors have repeated researches of multi-layered (hereinafter often just "multilayer") metal structure of Fe and Cu in order that a semi-hard magnetic material may be produced from the Fe-Cu multilayer material. As a result thereof, the present inventors found out a surprising phenomenon that, by heating the Fe-Cu multi-layered metal body, Cu layers are agglomerated to become spheres, with the result that the Cu layers [is]are divided into a discrete phase fine in size, namely, the Cu layers are segmented substantially sheet-like layers.

IN THE CLAIMS:

The claims are amended as follows:

1. (Three times amended) A method of producing a semi-hard magnetic material, wherein the magnetic coercive force H_c of the semi-hard magnetic material is greater than or equal to 800 A/m, which semi-hard magnetic material can maintain a magnetized state and can also be demagnetized, comprising the steps of: preparing a multilayer body in which layers "A" each consist essentially of Fe having magnetism and layers "B" each containing a non-magnetic Cu group metal as the main component thereof are stacked on each other; heating the multilayer body so that [each of] the layers "B" [is partially divided] are segmented

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. Application No.: 09/530,694

APPENDIX
VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE SPECIFICATION:

In the substitute specification:

Page 4 of the substitute specification, second full paragraph, please amend to read
as follows:

The present inventors have repeated researches of multi-layered (hereinafter often just
"multilayer") metal structure of Fe and Cu in order that a semi-hard magnetic material may be
produced from the Fe-Cu multilayer material. As a result thereof, the present inventors found
out a surprising phenomenon that, by heating the Fe-Cu multi-layered metal body, Cu layers are
agglomerated to become spheres, with the result that the Cu layers [is]are divided into a discrete
phase fine in size, namely, the Cu layers are segmented substantially sheet-like layers.

IN THE CLAIMS:

The claims are amended as follows:

1. (Three times amended) A method of producing a semi-hard magnetic material, wherein the magnetic coercive force H_c of the semi-hard magnetic material is greater than or equal to 800 A/m, which semi-hard magnetic material can maintain a magnetized state and can also be demagnetized, comprising the steps of: preparing a multilayer body in which layers "A" each consist essentially of Fe having magnetism and layers "B" each containing a non-magnetic Cu group metal as the main component thereof are stacked on each other; heating the multilayer body so that [each of] the layers "B" [is partially divided] are segmented

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. Application No.: 09/530,694

substantially sheet-like layers formed by a dividing heat treatment; and applying a cold plastic working to the multilayer body.

6. (Three times amended) A semi-hard magnetic material wherein the magnetic coercive force H_c of the semi-hard magnetic material is greater than or equal to 800 A/m which semi-hard magnetic material can maintain a magnetized state and can also be demagnetized, said magnetic material having a structure in which layers "A" each consist essentially of Fe having magnetism and layers "B" each containing a non-magnetic Cu group metal as the main component thereof are stacked on each other, [each of said] the layers "B" [being provided with a shape of a sheet partially divided] being segmented substantially sheet-like layers.

16. (Amended) A semi-hard magnetic material wherein the magnetic coercive force H_c of the semi-hard magnetic material is greater than or equal to 800 A/m, which semi-hard magnetic material can maintain a magnetized state and can also be demagnetized, said magnetic material having a structure in which layers "A" each consist [essentially] of Fe having magnetism and layers "B" each containing a non-magnetic Cu group metal as the main component thereof are stacked on each other, each of said layers "B" [being provided with a shape of a sheet partially divided] being segmented substantially sheet-like layers.